

10/535,084 03/10/2009

=> s stent or vascular or atherosclerosis or coronary or vein  
    7145 STENT  
    7671 STENTS  
    9579 STENT  
        (STENT OR STENTS)  
205742 VASCULAR  
    8 VASCULARS  
205747 VASCULAR  
    (VASCULAR OR VASCULARS)  
65451 ATHEROSCLEROSIS  
84033 CORONARY  
    270 CORONARIES  
84105 CORONARY  
    (CORONARY OR CORONARIES)  
71600 VEIN  
32264 VEINS  
92600 VEIN  
    (VEIN OR VEINS)  
L1     392006 STENT OR VASCULAR OR ATHEROSCLEROSIS OR CORONARY OR VEIN

=> s alloy  
    745351 ALLOY  
    559190 ALLOYS  
L2     931494 ALLOY  
        (ALLOY OR ALLOYS)

=> s 11 and 12  
L3     1445 L1 AND L2

=> s magnesium or (alkaline earth metals) or Mg  
    550353 MAGNESIUM  
    91 MAGNESIUMS  
    550388 MAGNESIUM  
        (MAGNESIUM OR MAGNESIUMS)  
141685 ALKALINE  
    94 ALKALINES  
141764 ALKALINE  
    (ALKALINE OR ALKALINES)  
447006 ALK  
    672 ALKS  
447366 ALK  
    (ALK OR ALKS)  
494203 ALKALINE  
    (ALKALINE OR ALK)  
358638 EARTH  
    25270 EARTHS  
    367494 EARTH  
        (EARTH OR EARTHS)  
951499 METALS  
    21434 ALKALINE EARTH METALS  
        (ALKALINE(W)EARTH(W)METALS)  
1545360 MG  
    1722 MGS  
1546537 MG  
    (MG OR MGS)  
L4     1880948 MAGNESIUM OR (ALKALINE EARTH METALS) OR MG

=> s 13 and 14

10/535,084 03/10/2009

L5 221 L3 AND L4

=> s yttrium or (Group IIIB elements) or Y  
183830 YTTRIUM  
4 YTTRIUMS  
183830 YTTRIUM  
(YTTRIUM OR YTTRIUMS)  
1836926 GROUP  
1210234 GROUPS  
2560155 GROUP  
(GROUP OR GROUPS)  
9240 IIIB  
735467 ELEMENTS  
964 GROUP IIIB ELEMENTS  
(GROUP(W)IIIB(W)ELEMENTS)

365836 Y  
L6 494539 YTTRIUM OR (GROUP IIIB ELEMENTS) OR Y

=> s 15 and 16

L7 46 L5 AND L6

=> s 17 and py<2004

24034809 PY<2004

L8 6 L7 AND PY<2004

=> d ibib abs hitind 1-6

L8 ANSWER 1 OF 6 HCPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2001:228755 HCPLUS <<LOGINID::20090310>>  
DOCUMENT NUMBER: 134:242750  
TITLE: Antimicrobial and anti-inflammatory endovascular  
(cardiovascular) stent  
INVENTOR(S): Lee, Clarence C.  
PATENT ASSIGNEE(S): USA  
SOURCE: PCT Int. Appl., 27 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2001021229	A1	20010329	WO 2000-US40979	20000922 <--
W: AU, CA, CN, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,				
PT, SE				

PRIORITY APPLN. INFO.: US 1999-404577 A 19990923  
AB An antimicrobial and anti-inflammatory endovascular (cardiovascular) stent includes base material for the stent and an incorporated antimicrobial agent for the treatment of diseased blood vessel in such way that the antimicrobial agent is slowly released into the disease blood vessel wall which is in direct contact with the stent to treat the blood vessel tissue or the plaque by both killing the disease-causing microbe(s) and relieving the inflammation. The stent can slowly release the antimicrobial and anti-inflammatory agent(s) directly to the diseased tissue or the plaque that is infected by microbes. Consequently, the inflammation is relieved by the anti-inflammatory agent and the inflammation causing microbes are

controlled or killed by the antimicrobial agent. A sterile, surgical steel, endovascular stent is aseptically dipped into a sterile solution of 20% benzalkonium chloride, 5% hydrocortisone and 75% ethanol solution

IC ICM A61L031-16  
CC 63-8 (Pharmaceuticals)  
ST stent cardiovascular antimicrobial antiinflammatory  
IT Anti-inflammatory agents  
Antibacterial agents  
Antimicrobial agents  
Antiviral agents  
Fungicides  
    (antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Borides  
Carbides  
DNA  
Enzymes, biological studies  
Fluoropolymers, biological studies  
Lipids, biological studies  
Mucopolysaccharides, biological studies  
Nitrides  
Oxides (inorganic), biological studies  
Polyacetylenes, biological studies  
Polyamides, biological studies  
Polyamides, biological studies  
Polycarbonates, biological studies  
Polyesters, biological studies  
Polyethers, biological studies  
Polynucleotides  
Polyolefins  
Polyoxalkylenes, biological studies  
Polysaccharides, biological studies  
Polysulfones, biological studies  
Polyurethanes, biological studies  
Polyvinyl acetals  
Polyvinyl butyrals  
Proteins, general, biological studies  
RNA  
Shape memory alloys  
Silicides  
Steroids, biological studies  
Sulfonamides  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
    (antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Polyvinyl acetals  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
    (formals; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Prosthetic materials and Prosthetics  
    (glass ceramics; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Polyimides, biological studies  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
    (polyamide-; antimicrobial and anti-inflammatory endovascular

(cardiovascular) stent)  
IT Polyamides, biological studies  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(polyimide-; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Acetals  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(polymers; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Glass ceramics  
(prosthetic; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT Medical goods  
(stents; antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)  
IT 69-72-7D, Salicylic acid, derivs. 208-96-8D, Acenaphthylene, polymers 7429-90-5, Aluminum, biological studies 7439-88-5, Iridium, biological studies 7439-89-6, Iron, biological studies 7439-92-1, Lead, biological studies 7439-93-2, Lithium, biological studies 7439-95-4, Magnesium, biological studies 7439-96-5, Manganese, biological studies 7439-98-7, Molybdenum, biological studies 7440-02-0, Nickel, biological studies 7440-03-1, Niobium, biological studies 7440-04-2, Osmium, biological studies 7440-05-3, Palladium, biological studies 7440-06-4, Platinum, biological studies 7440-08-6, Polonium, biological studies 7440-09-7, Potassium, biological studies 7440-15-5, Rhenium, biological studies 7440-16-6, Rhodium, biological studies 7440-18-8, Ruthenium, biological studies 7440-22-4, Silver, biological studies 7440-23-5, Sodium, biological studies 7440-25-7, Tantalum, biological studies 7440-31-5, Tin, biological studies 7440-32-6, Titanium, biological studies 7440-33-7, Tungsten, biological studies 7440-36-0, Antimony, biological studies 7440-41-7, Beryllium, biological studies 7440-44-0, Carbon, biological studies 7440-46-2, Cesium, biological studies 7440-47-3, Chromium, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-54-2, Gadolinium, biological studies 7440-55-3, Gallium, biological studies 7440-57-5, Gold, biological studies 7440-58-6, Hafnium, biological studies 7440-62-2, Vanadium, biological studies 7440-65-5, Yttrium, biological studies 7440-66-6, Zinc, biological studies 7440-67-7, Zirconium, biological studies 7440-74-6, Indium, biological studies 9002-84-0, Ptfe 9002-85-1, Polyvinylidene chloride 9002-86-2, Pvc 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol 9003-05-8, Polyacrylamide 9003-07-0, Polypropylene 9003-17-2, Polybutadiene 9003-20-7, Polyvinyl acetate 9003-27-4, Polyisobutylene 9003-31-0, Polyisoprene 9003-39-8, Pvp 9003-44-5, Polyvinyl isobutyl ether 9003-53-6, Polystyrene 9003-95-6, Polyvinyl stearate 9010-98-4, Polychloroprene 9011-14-7, Pmma 10103-46-5, Calcium phosphate 24937-78-8, Eva 24980-41-4, Polycaprolactone 24981-14-4, Polyvinyl fluoride 25014-41-9, Polyacrylonitrile 25038-54-4, Poly( $\epsilon$ -aminocaproic acid), biological studies 25067-58-7, Polyacetylene 25067-59-8, Polyvinyl carbazole 25104-18-1, Poly(L-lysine) 25232-41-1, Poly(4-vinylpyridine) 25248-42-4, Polycaprolactone 25322-68-3, Peg 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Poly(lactic acid) 26124-68-5, Polyglycolic acid 38000-06-5, Poly(L-lysine) 52013-44-2, Nitinol 80181-31-3, 3-Hydroxybutyric acid-3-hydroxyvaleric acid copolymer  
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological

study); USES (Uses)

(antimicrobial and anti-inflammatory endovascular (cardiovascular) stent)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 6 HCPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1998:512310 HCPLUS <>LOGINID::20090310>>  
 DOCUMENT NUMBER: 129:207253  
 ORIGINAL REFERENCE NO.: 129:41999a,42002a  
 TITLE: Medical goods comprising amorphous alloys having specific magnetization susceptibility  
 INVENTOR(S): Hata, Seiichi; Yamada, Norihiro; Shitamura, Koji; Shibata, Norikiyo; Takahashi, Shigenari  
 PATENT ASSIGNEE(S): Olympus Optical Co., Ltd., Japan; Inoue, Akihisa  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10211184	A	19980811	JP 1997-19361	19970131 <--
JP 3710582	B2	20051026		

PRIORITY APPLN. INFO.: JP 1997-19361 19970131

AB The medical goods, e.g. scissors for endoscopic biopsy, surgical clips, osteosynthesis plates, orthodontic wires, implants, injection needles, stents, needles for aspiration biopsy, etc., which do not interfere NMR imaging, comprise amorphous alloys of elements having magnetic susceptibility between -160 + 10<sup>-6</sup> and +160 + 10<sup>-6</sup> emu·mol<sup>-1</sup>. The alloys may be X<sub>a</sub>Al<sub>b</sub>Y<sub>c</sub> (X = Zr, Ti, Mg, Hf; Y = Cu, B; 50 ≤ a ≤ 80; 5 ≤ b ≤ 80; 0 ≤ c ≤ 50 atomic %) or X<sub>d</sub>A<sub>e</sub>Y<sub>f</sub>Z<sub>g</sub> (X, Y = any metal given above; Z = Ni, Co, Fe; 50 ≤ d ≤ 80; 5 ≤ e ≤ 80; 0 ≤ f ≤ 50; 5 ≤ g ≤ 20 atomic %). A pair of sampling caps for endoscopic biopsy was made from Zr<sub>60</sub>A<sub>11</sub>Ni<sub>15</sub>Cu<sub>5</sub>Co<sub>5</sub>. NMR image of a phantom on which the caps were attached had no distortion.

IC ICM A61B005-055  
 ICS C22C045-10; G01N033-48

CC 63-7 (Pharmaceuticals)  
 Section cross-reference(s): 56

ST medical good amorphous alloy magnetic susceptibility; MRI compatible medical good amorphous alloy; endoscopic biopsy forceps aluminum alloy; aluminum alloy MRI compatible medical good

IT Imaging  
 (NMR; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)

IT Prosthetic materials and Prosthetics  
 Prosthetic materials and Prosthetics  
 (alloys, implants; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)

IT Endoscopes  
 (biopsy forceps; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere

MRI)  
IT Medical goods  
(clips; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Medical goods  
(medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Metallic glasses  
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Syringes  
(needles for; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Needles (tools)  
(needles, for syringes and aspiration biopsy; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Dental materials and appliances  
(orthodontic wires; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Medical goods  
(stents; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT Metallic glasses  
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(zirconium alloy; medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)  
IT 163166-65-2 204505-59-9  
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(medical goods comprising amorphous alloys having specific magnetization susceptibility which do not interfere MRI)

L8 ANSWER 3 OF 6 HCPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 1994:250721 HCPLUS <<LOGINID::20090310>>  
DOCUMENT NUMBER: 120:250721  
ORIGINAL REFERENCE NO.: 120:44311a, 44314a  
TITLE: Production of bulk amorphous Mg85Y10Cu5 alloy  
by extrusion of atomized amorphous powder  
AUTHOR(S): Kato, A.; Inoue, A.; Horikiri, H.; Masumoto, T.  
CORPORATE SOURCE: Inst. Mater. Res., Tohoku Univ., Sendai, 980, Japan  
SOURCE: Materials Transactions, JIM (1994), 35(2),  
125-9  
CODEN: MTJIEY; ISSN: 0916-1821  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Amorphous Mg85Y10Cu5 powders with a particle size fraction less than 25  $\mu\text{m}$  were produced by using a newly designed high-pressure argon atomization-consolidation equipment in which each content of oxygen and moisture was controlled to be less than 1 ppm. The extrusion of the amorphous powders at 373 K causes the formation of a bulk alloy having the nonequil. structure which is the same as that for the

as-atomized powders. The thermal stability of the extruded alloy is also the same as that for the as-atomized powders. The Young's modulus, compressive fracture strength and fracture elongation at R.T. for the bulk alloy are 46 GPa, 750 MPa and 1.8%, resp., which are nearly the same as those for the melt-spun amorphous ribbon with the same alloy composition. The fracture surface of the bulk alloy consists mainly of a vein pattern. No appreciable trace of the original boundaries between the powders is seen and hence the powders seem to have a truly bonding state. The good consolidation tendency is presumably because of the clean surface state for the atomized powder by the use of the closed preparation equipment.

CC 56-11 (Nonferrous Metals and Alloys)  
 ST amorphous magnesium alloy extrusion  
 IT Extrusion  
     (of amorphous magnesium alloy)  
 IT Metallic glasses  
     RL: PROC (Process)  
         (magnesium alloy, extrusion of)  
 IT 132754-66-6, Copper 5, magnesium 85, yttrium 10  
     (atomic)  
     RL: PROC (Process)  
         (amorphous, extrusion of)

L8 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1966:29220 HCAPLUS <>LOGINID::20090310>>  
 DOCUMENT NUMBER: 64:29220  
 ORIGINAL REFERENCE NO.: 64:5450e-h  
 TITLE: Element content of bryophytes  
 AUTHOR(S): Shacklette, Hansford T.  
 SOURCE: U.S. Geological Survey Bulletin (1965),  
         1198-D, 21 pp.  
 CODEN: XDIGAS; ISSN: 0083-1093  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Thirty-eight samples of liverworts and mosses and the substrates on which they grew were analyzed for 33 elements by colorimetric, chemical, and spectrographic methods. Average percentages of these elements in ash of the bryophytes are: Ag 0.0009, Al 4.2, B 0.0093, Ba 0.4648, Be 0.0006, Bi 0.003, Ca 9.1, Ce 0.042, Co 0.0032, Cr 0.0079, Cu 0.0204, Fe 2.08, Ga 0.0018, I 0.0005, K 4.2, La 0.009, Mg 1.97, Mo 0.0012, Mn 0.3058, Nb 0.005, Nd 0.02, Ni 0.0083, P 0.96, Pb 0.186, Sc 0.001, Sn 0.002, Sr 0.0451, Ti 0.196, V 0.0071, Y 0.005, Yb 0.0006, Zn 0.152, and Zr 0.0124. The elements which were not found were: As, Au, Cd, Dy, Er, Eu, Gd, Hf, Hg, Ho, In, Li, Lu, Pd, Pr, Re, Sb, Sm, Ta, Tb, Te, Th, Tl, Tm, U, and W. Similarly, 1500 samples of vascular plants from the same regions as the bryophytes were analyzed by the same methods. Bryophytes contained greater percentages of 13 elements than did vascular plants, lesser amounts of 15 elements and similar amounts of 3 elements. Nb and Sc are present in measurable amounts in bryophytes but not in vascular plants. Cd, Li, and Re were found in vascular plants but not bryophytes. Bryophytes have a lesser amount of the major elements Ca, Mg, K, and P than vascular plants. The content of an element in bryophytes is related to the content of the same element in the supporting substrate only if the substrate contains the element in greater than normal amounts. Bryophytes, however, can concentrate specific elements, including the rare earths, even where they grow on substrates in which the elements were not detected. The ash of certain bryophytes contained Ba 5.0, Cu 0.2, Pb 2.0, Sr 0.15, and Zn 2.0%; Be, La, Ti, and Zr were more abundant in the substrates than in the plant

10/535,084 03/10/2009

ash. Distinctive patterns of element absorption by bryophyte taxa are indicated but not proven.

CC 61 (Plant Biochemistry)  
IT 7429-90-5, Aluminum 7439-89-6, Iron 7439-91-0, Lanthanum 7439-92-1, Lead 7439-95-4, Magnesium 7439-96-5, Manganese 7439-98-7, Molybdenum 7440-00-8, Neodymium 7440-02-0, Nickel 7440-03-1, Niobium 7440-09-7, Potassium 7440-20-2, Scandium 7440-22-4, Silver 7440-24-6, Strontium 7440-31-5, Tin 7440-32-6, Titanium 7440-39-3, Barium 7440-41-7, Beryllium 7440-45-1, Cerium 7440-47-3, Chromium 7440-50-8, Copper 7440-55-3, Gallium 7440-62-2, Vanadium 7440-64-4, Ytterbium 7440-65-5, Yttrium 7440-66-6, Zinc 7440-67-7, Zirconium 7440-69-9, Bismuth 7553-56-2, Iodine 7723-14-0, Phosphorus 14391-99-2, Calcium, isotope of mass 47 22541-53-3, Cobalt, ion 2+ 570400-21-4, Boron alloys, Hf-Mo-Ti-V-Zr-  
(in liverworts and mosses)

L8 ANSWER 5 OF 6 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1963:434473 HCPLUS <<LOGINID::20090310>>

DOCUMENT NUMBER: 59:34473

ORIGINAL REFERENCE NO.: 59:6131h,6132a-b

TITLE: Conditions of formation of Iceland spar

AUTHOR(S): Shiritsya, O. S.; Vishnevs'kii, A. S.

CORPORATE SOURCE: Geol. Zh., Akad. Nauk Ukr. RSR

SOURCE: (1963), 23(2), 33-41

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB New occurrences of Iceland spar were discovered in Central Asia. Geol. structural and phys.-chemical conditions of their formation in this deposit were investigated. The country rocks (Devonian-Carboniferous limestones) and coarse-grained granites cutting limestones, together with disjunctive dislocations, were favorable for the formation of calcite veins containing Iceland spar. The Iceland spar-bearing druses are located in the fractured zones of near-contact marbles and metamorphic limestones about 200 m. distant from the contact with granite intrusions. The crystals of Iceland spar contain V traces, Cu .apprx. 0.001, Y 0.007-0.01, La 0.02-0.03, Ce .apprx.0.1, Pb 0.005-0.007, Ti traces to 0.001, Sr traces to 0.01, and Mg 0.03 to 0.1%. Evidently, admixt. of rare-earth elements played a favorable role in the formation of clear Iceland spar crystals: calcite of milky-white and blue color contained no La, Y , and Ce. The phys.chemical conditions of Iceland spar formation were studied from inclusions in its crystals. Three mineralization stages were separated: early, intermediary, and final. In the beginning, the solns. were homogeneous; in the 2nd stage liberation of CO<sub>2</sub> occurred and the solution became deaerated and heterogeneous; and in the 3rd stage solns. again became homogeneous. There was a gradual decrease in mineral content of solns. during mineralization. The pressure dropped from 90 to 60 atmospheric, the temperature from 218 to 80°, and the pH from 6.5 to 5.5.

CC 25 (Mineralogical and Geological Chemistry)

IT 7440-45-1, Cerium 7440-65-5, Yttrium  
(in calcite (Iceland spar) of Central Asia)

IT 570400-21-4, Boron alloys, Hf-Mo-Ti-V-Zr-  
(minerals, review on)

L8 ANSWER 6 OF 6 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1963:407895 HCPLUS <<LOGINID::20090310>>

DOCUMENT NUMBER: 59:7895

ORIGINAL REFERENCE NO.: 59:1381f-h,1382c-g

TITLE: Moncheite and kotul'skite, new minerals; composition of michenerite

AUTHOR(S): Genkin, A. D.; Zhuravlev, N. N.; Smirnova, E. M.  
 CORPORATE SOURCE: M. V. Lomonosov State Univ., Moscow  
 SOURCE: Zapiski Vserossiiskogo Mineralogicheskogo Obshchestva  
 (1963), 92, 33-50  
 CODEN: ZVMOEK; ISSN: 0869-6055

DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB In vein Number 16 of the Cu-Ni sulfide ore deposits of Monchegorsk, since 1947, rare, previously unknown Pt telluride-bismuthides were observed which show analogies in their x-ray diffraction diagrams with synthetic PtTe<sub>2</sub> and PdBi<sub>2</sub> (described as michenerite from Sudbury). Minute grains of PtTe<sub>2</sub>, called moncheite as a new mineral, occur in interstices between chalcopyrite, pyrrhotite, and violarite, also intergrown with michenerite, and the other new mineral, called kutol'skite, which is a Pd-Te-Bi alloy. Moncheite has metallic luster, is steel-gray, reflectivity is 60%, and it is strongly anisotropic. A basal cleavage is indicated. It is insol. in acids and not etched by KOH, KCN, and FeCl<sub>3</sub>. Microspectral analysis data are: Pt 22-31, Bi 32-9, Pd 5-9.2, and Te 33.5-55.4%. The variation of the atomic ratio is Pt 0.5-0.7/Pd 0.2-0.4; Bi is 0.2-0.7%/Te 1.3-1.8 (Ni + Te = 2), corresponding to a formula (Pt, Pd) (Te, Bi)<sub>2</sub>, with ratio Pt/Pd variable between 2/1 and 3/1. The x-ray data are: hexagonal, *a* is 4.049 ± 0.001 and *c* 5.288 ± 0.005 Å.; *c/a* is 1.281, in good agreement with PtTe<sub>2</sub> (F. Gronvold, et al., Acta Chemical Scand. 14(9), 1879(1960)), and a synthetic alloy of moncheite composition Kutol'skite is found in small grains between chalcopyrite; it is of cream color and reflectivity is 66%; it is strongly anisotropic with slightly brownish to violet-gray tints. It is insol. in acids and very sluggishly etched by FeCl<sub>3</sub>. Microspectral analysis did not reveal any Pt, but Pd was 31, Bi 25, and Te 44%; the formula is Pd(Te<sub>x</sub>Bi<sub>y</sub>)<sub>1-2</sub>, with *x* > *y*. It is hexagonal, *a* is 4.19 ± 0.01 and *c* 5.67 ± 0.01 Å.; *c/a* is 1.35. It is very similar to synthetic PdTe and to a synthetic alloy of Pt 74, Pd 135, Bi 360, and Te 29 mg., forming a yellowish crystalline phase with a 4.22 and *c* 5.68 Å.; *c/a* is 1.34, and a ternary alloy of the system Pd-Bi-Te, with crystalline solns. Pd(Bi,Te)-Pd(Bi,Te)<sub>2</sub>. In comparison with the 2 new minerals, michenerite is distinguished by its distinctly lower reflectivity (56%) and isotropy. Microspectral analysis shows Pd 11.7-16.9; Bi 42.3-45.0; Pt 8.4-9.3; and Te 37.6-28.8%. The binary system Pd-Bi (CA 51, 15236e), indicates the mineral froodite (Hawley and Berry, CA 52, 19728e) identical with α-PdBi<sub>2</sub>, but not michenerite. X-ray diffraction shows for this mineral a cubic unit cell with a 6.654 ± 0.002 Å. (pyrite type), similar to PtBi<sub>2</sub>, with statistical distribution of the metal atoms, and the approx. composition Pd0.75Pt0.25BiTe; *d*. is 10.4 (Pt-Bi<sub>2</sub> has 13.5) and the atomic distances are Pd-Pd(Pt) 4.71, Bi-Bi(Te) 2.77; and Pd(Pt)-Bi(Te) 2.77 Å. The formula PdBi<sub>2</sub> is not correct. Synthetic michenerite shows in differential thermal analysis a strong endothermic effect at 500°, and 3 smaller effects at 420-80°, near 610, and at 780°. The micrograph of the alloy exposed for 250 hrs. at 400° shows complex incongruent fusion-crystallization phenomena, with michenerite prevailing, but also other phases are present. Of great crystallochem. importance is the occurrence of a complete crystalline solubility in the series PdTe-PdTe<sub>2</sub>, with transition from NiAs to CdI<sub>2</sub> structure type, whereas in ternary mixes pyrite-type structures are absent. They are only verified in the complex composition of Pt<sub>x</sub>Bi<sub>2</sub>-Pd<sub>1-x</sub>Te<sub>2</sub> (with *x* .apprx.0.25). A morphotropic change occurs from CdI<sub>2</sub> to pyrite-type structure, with an increased share in covalent and a decreased share in metallic bonding characters. Further, there is a crystallization of anthophyllite in the Pt-Pd bearing chalcopyrite ore veins of the Monchegorsk deposit. The anthophyllite is most probably a recrystn. phase in the chalcopyrite ore

10/535,084 03/10/2009

from primary anthophyllites. The primary ore composition of pyrrhotite + chalcopyrite + pentlandite is then changed to magnetite + chalcopyrite + violarite, cubanite, bornite, and Pt- minerals + anthophyllite, by residual solns. bearing Pt, Pd, Bi, and Te.

CC 25 (Mineralogical and Geological Chemistry)